

Under the Auspices of H.E.
The President of the Hellenic Republic
Dr Karolos Papoulias

www.espci2011.com



10th European Symposium on Paediatric Cochlear Implantation



May 12-15, 2011

Divani Apollon Palace • Athens, Greece

Celebrating 50 years of Cochlear Implantation

All accepted abstracts will be published in the International Journal of
Pediatric Otorhinolaryngology. Impact Factor: 1,2
Deadline for Abstracts Submission: 15th December.

MEDIMOND

INTERNATIONAL PROCEEDINGS

Posterior tympanotomy versus endomeatal approach (EMA)

Slavutsky V.¹, Nicenboim L.², Posada R.³

¹*Sant Camil Hospital, Barcelona, Spain*

²*Institute of Otolology ,Rosario,Argentina*

³*FIMF associated Center.Pereira,Colombia*

Mail address: victor slavutsky@gmail.com

Summary

The usual technique for cochlear implantation (CI) involves an antromastoidectomy and a posterior tympanotomy (PT) through the facial recess (1). The endomeatal approach (EMA) is a surgical technique that uses a direct approach through two natural orifices: the external auditory canal (EAC) and the round window (RW) (18, 19).

The aim is to describe the advantages of this approach; not only in conventional cochlear implant surgery, but in all those cases in which the posterior tympanotomy approach is difficult to perform.

The groove

EMA requires making a bony EAC groove for electrode lead (EL) lodging, in order to avoid contact between the skin and the EL that could lead to its extrusion .

A safe anatomic area to perform the groove with no risk for adjacent structures like facial nerve, chorda tympani, eardrum and ossicular chain were studied in Temporal bone Lab, and finally established with these landmarks: the incus and pyramidal process in the inner EAC side, and the outer border of tympano-squamous suture in the outer side. This groove placement is also on line with the axis of the more basal segment of scala tympani (ST), so the EL does not suffer any degree of bending after it is finally positioned in the ST.Fig.1

From the pyramidal process in up, there is enough room to drill a groove with a 0.5 mm cutting burr. An overhang is left in the superior groove's edge, in order to retain the electrode lead and avoid its contact with the EAC skin,therefore preventing extrusion.

1 mm wide and 2 mm depth is enough to cross the fallopian canal at a safe distance and lodge the EL. The pyramid level is the best place for the following reasons:

- a safe distance to FN even in infants;

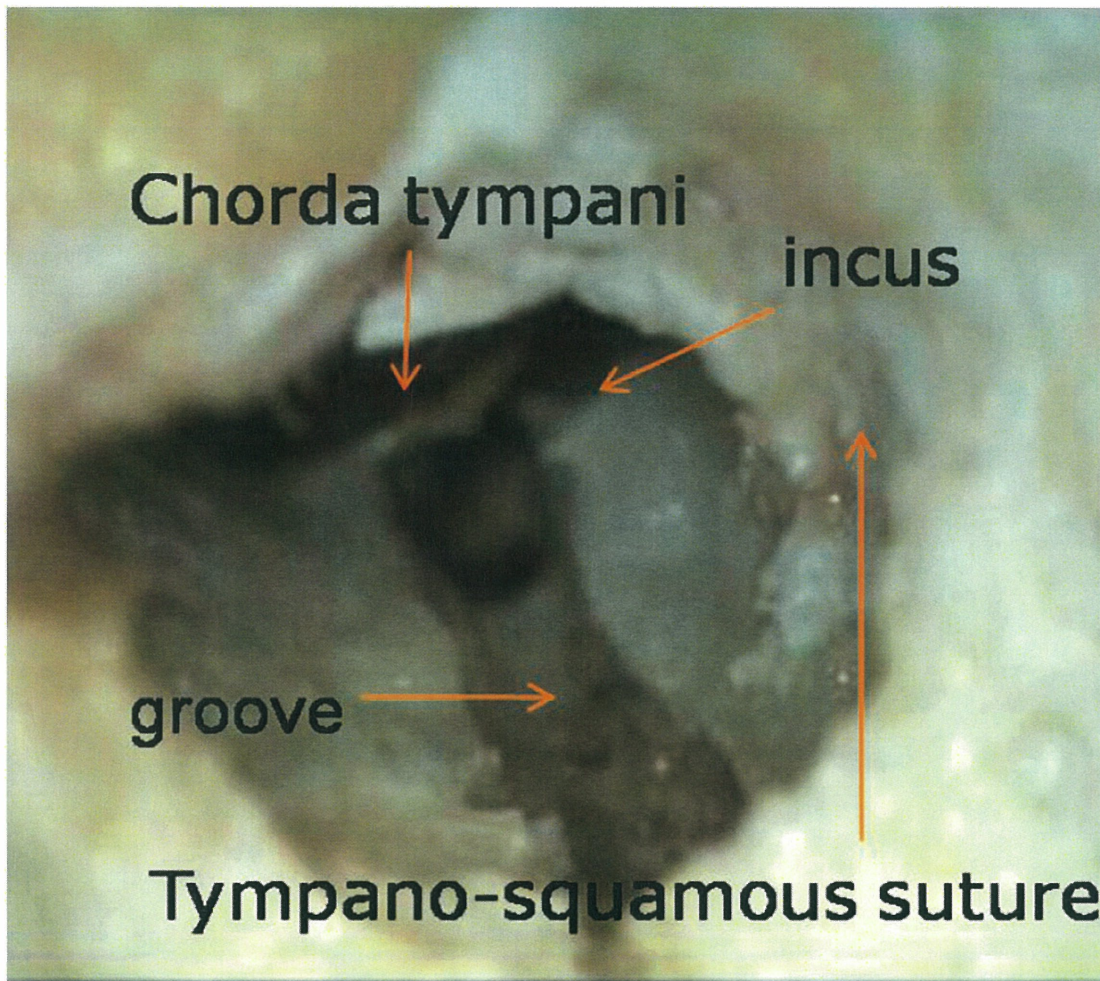


Fig.1 Groove anatomical landmarks

- good direct control of fallopian canal, visible at oval window;
- good position for electrode insertion in the plane described before;
- EL does not cross over the incus process in its way to the RW.

An anterior tympanotomy (stapedectomy- like) is needed in the first surgical stage through an autostatic ear speculum, to start the groove. In the second stage a retroauricular incision is performed, to extend the groove up to the mastoid surface and a small flat mastoid cavity (2cm wide, and 3mm depth) anterior to the well, is performed to lodge the wire excess. In the third stage, after RW electrode array (EA) insertion, the groove is obturated with bone patè, and the tympanometal flap is replaced.

Rw optimal insertion plane inherent to ema

The safest site for positioning of the electrode array is the floor of the scala tympani(21). The projection of the axis of the basal spira passes between the posterior border of the oval window and the pyramidal process, and inferiorly by the internal aspect of the crista fenestra. Therefore, in order to avoid damage to the neurosensory structures, the direction of an optimal imaginary insertion plane must be from postero-